

WHAT IS CLAIMED IS:

1. A method of controlling oral pathogens comprising administering to a mammal in need thereof a therapeutically effective amount of an antimicrobial or an antibiotic, and a therapeutically effective amount of a berberine.
2. The method of claim 1 wherein the antimicrobial or antibiotic and berberine are administered simultaneously.
3. The method of claim 2 wherein the antimicrobial or antibiotic and berberine are administered from a single composition.
4. The method of claim 2 wherein the antimicrobial or antibiotic and berberine are administered from separate compositions.
5. The method of claim 1 wherein the antimicrobial or antibiotic and berberine are administered sequentially.
6. The method of claim 5 wherein the antimicrobial or antibiotic is administered prior to the berberine.

7. The method of claim 5 wherein the berberine is administered prior to the antimicrobial or antibiotic.

8. The method of claim 1 wherein the antimicrobial or antibiotic is selected from the group consisting of a chlorhexidine, a tetracycline, and a mixture thereof.

9. The method of claim 1 wherein the antimicrobial or antibiotic is selected from the group consisting of chlorhexidine, chlorhexidine dihydrochloride, chlorhexidine diacetate salt hydrate, chlorhexidine digluconate, alexidine, alexidine dihydrochloride, tetracycline, tetracycline hydrochloride, doxycycline, doxycycline hydrochloride, and mixtures thereof.

10. The method of claim 1 wherein the antimicrobial or antibiotic comprises chlorhexidine, tetracycline, doxycycline, or a salt thereof..

11. The method of claim 1 wherein the berberine is selected from the group consisting of free berberine, berberine sulfate, berberine bisulfate, berberine hemisulfate, berberine chloride, berberrubine, coptisine, palmatine, 8-ethyl-12-bromoberberine, 8-ethylberberine, 8-methoxyberberine, 8-methylberberine, 8-n-butyl-12-bromoberberine, 8-n-butylberberine, 8-n-hexyl-12-bromoberberine, 8-n-propyl-12-bromoberberine, 8-n-propylberberine, 8-phenyl-12-bromoberberine, 8-phenylberberine, 9-O-acetylberberrubine, 9-O-benzoylberberrubine, 9-O-ethyl-13-ethylberberrubine, 9-O-ethylberberrubine, 9-O-lauroylberberrubine, 9-O-valerylberberrubine, 12-bromoberberine, 13-ethoxyberberine, 13-ethylberberine, 13-ethylpalmatine, 13-hydroxyberberine, 13-methoxyberberine, 13-methylberberine, 13-methylberberubine, 13-methyldihydroberberine N-methyl salt, 13-methylpalmatine, 13-n-butylberberine, 13-n-butylpalmatine, 13-n-hexylberberine, 13-n-hexylpalmatine, 13-n-propylberberine, 13-n-propylpalmatine, and mixtures thereof.

12. The method of claim 1 wherein the berberine comprises berberine chloride, berberine sulfate, or a mixture thereof.

13. The method of claim 1 wherein the antimicrobial or antibiotic is administered at a dose lower than a dose of the same antibiotic administered alone to achieve a predetermined control of oral pathogens.

14. The method of claim 13 wherein lower dose is about one-half of the antimicrobial or antibiotic dose when used alone.

15. The method of claim 13 wherein lower dose is about one-quarter of the antimicrobial or antibiotic dose when used alone.

16. The method of claim 1 wherein the berberine is administered at a dose lower than a dose of the same berberine administered alone to achieve a predetermined control of oral pathogens.

17. The method of claim 16 wherein lower doses in about one-half of the berberine dose when used alone.

18. The method of claim 16 wherein lower dose is about one-quarter of the antimicrobial or antibiotic dose when used alone.

19. The method of claim 1 wherein the mammal is a human.

20. A method of treating a mouth, tooth, or gum disease or condition comprising administering to a mammal in need thereof a therapeutically effective amount of an antimicrobial or an antibiotic, and a therapeutically effective amount of a berberine.

21. The method of claim 20 wherein the disease or condition is selected from the group consisting of dental caries, a periodontal disease, gingivitis, periodontitis, endocarditis, a candidial infection, an infection of oral hard or soft tissue, and plaque formation.

22. A method of controlling human pathogens comprising administering to a mammal in need thereof a therapeutically effective amount of an antimicrobial or antibiotic, and a therapeutically effective amount of a berberine.

23. A method of treating a disease or condition caused by a human pathogen comprising administering to a mammal in need thereof a therapeutically effective amount of an antimicrobial or an antibiotic, and a therapeutically effective amount of a berberine.

24. A composition comprising (a) an antimicrobial or an antibiotic, (b) a berberine, and (c) an optional excipient.

25. The composition of claim 24 wherein the antimicrobial or antibiotic is selected from the group consisting of chlorhexidine, chlorhexidine dihydrochloride, chlorhexidine diacetate salt hydrate, chlorhexidine digluconate, alexidine, alexidine dihydrochloride, tetracycline, tetracycline hydrochloride, doxycycline, doxycycline hydrochloride, and mixtures thereof.

26. The composition of claim 24 wherein the berberine comprising free berberine, berberine sulfate, berberine bisulfate, berberine hemisulfate, berberine chloride, berberrubine, coptisine, palmatine, 8-ethyl-12-bromoberberine, 8-ethylberberine, 8-methoxyberberine, 8-methylberberine, 8-n-butyl-12-bromoberberine, 8-n-butylberberine, 8-n-hexyl-12-bromoberberine, 8-n-propyl-12-bromoberberine, 8-n-propylberberine, 8-phenyl-12-bromoberberine, 8-phenylberberine, 9-O-acetylberberrubine, 9-O-benzoylberberrubine, 9-O-ethyl-13-ethylberberrubine, 9-O-ethylberberrubine, 9-O-lauroylberberrubine, 9-O-valerylberberrubine, 12-bromoberberine, 13-ethoxyberberine, 13-ethylberberine, 13-ethylpalmatine, 13-hydroxyberberine, 13-methoxyberberine, 13-methylberberine, 13-methylberberubine, 13-methyldihydroberberine N-methyl salt, 13-methylpalmatine, 13-n-butylberberine, 13-n-butylpalmatine, 13-n-hexylberberine, 13-n-hexylpalmatine, 13-n-propylberberine, 13-n-propylpalmatine, and mixtures thereof.

27. An article of manufacture comprising:

- (a) a packaged composition comprising an antimicrobial or antibiotic;
- (b) a packaged composition comprising a berberine;
- (c) an insert providing instructions for a simultaneous or sequential administration of (a) and (b) to control oral pathogens in a mammal; and
- (d) a container for (a), (b), and (c).

28. An article of manufacture comprising:

- (a) a packaged composition comprising an antimicrobial or antibiotic and a berberine;
- (b) an insert providing instructions for administration of (a) to control oral pathogens in a mammal; and
- (c) a container for (a) and (b).

29. The article of claim 28 selected from the group consisting of a toothpaste, a mouth rinse, an oral hygiene product, a pharmaceutical product, a chewing gum, a toothbrush, a denture disinfectant, a dentifrice, a dental adhesive, and a dental impression material.